

GANARASKA REGION CONSERVATION AUTHORITY

MINUTES OF THE BOARD OF DIRECTORS

October 19, 2023 (Hybrid)

GRCA 06/23

1. Welcome, Land Acknowledgement and Call to Order

The Chair called the Ganaraska Region Conservation Authority (GRCA) Board of Directors meeting to order at 4:00 p.m.

MEMBERS PRESENT: Mark Lovshin, Chair - Township of Hamilton
Vicki Mink, Vice - Chair - Municipality of Port Hope
Randy Barber - Town of Cobourg
Miriam Mutton - Town of Cobourg
Lance Nachoff - Township of Cavan Monaghan
Adam Pearson - Municipality of Port Hope
Tracy Richardson - City of Kawartha Lakes
Joan Stover - Township of Alnwick/Haldimand
Margaret Zwart - Municipality of Clarington

ALSO PRESENT: Linda Laliberte, CAO/Secretary-Treasurer
Cory Harris, Watershed Services Coordinator
Ken Thajer, Planning and Regulations Coordinator

ABSENT WITH REGRETS: Bruce Buttar - Agricultural Representative
Willie Woo - Municipality of Clarington

ALSO ABSENT:

Land Acknowledgement

The Ganaraska Region Conservation Authority respectfully acknowledges that the land on which we gather is situated within the traditional and treaty territory of the Mississauga's and Chippewa's of the Anishinabek, known today as the Williams Treaties First Nations. Our work on these lands acknowledges their resilience and their longstanding contribution to the area. We are thankful for the opportunity to live, learn and share with mutual respect and appreciation.

2. Disclosure of Pecuniary Interest

None.

3. Minutes of Last Meeting

GRCA 47/23

MOVED BY: Vicki Mink
SECONDED BY: Joan Stover

THAT the Ganaraska Region Conservation Authority approve the minutes of the September 21, 2023 meeting.

CARRIED.

4. Adoption of the Agenda

GRCA 48/23

MOVED BY: Adam Pearson
SECONDED BY: Miriam Mutton

THAT the Ganaraska Region Conservation Authority adopt the agenda.

CARRIED.

5. Delegations

None.

6. Presentations

a) Wilmot/Graham Creek Floodplain Mapping Update Study

Cory Harris, Watershed Services Coordinator, presented an overview of the recently completed Floodplain Mapping Update Study. A copy of the presentation is attached to the minutes.

GRCA 49/23

MOVED BY: Adam Pearson
SECONDED BY: Tracy Richardson

THAT the Ganaraska Region Conservation Authority receive the presentation regarding the Wilmot and Graham Creek Floodplain Mapping Update Study for information;

AND FURTHER THAT the floodplain mapping for the Wilmot and Graham Creek watersheds as described in this report be adopted for use by the Ganaraska Region Conservation Authority.

CARRIED.

b) Floodplain Mapping Update Implementation Plan

Cory Harris, Watershed Services Coordinator, presented a brief overview of the Floodplain Mapping Update Implementation Plan. A copy of the presentation is attached to the minutes.

GRCA 50/23

MOVED BY: Miriam Mutton
SECONDED BY: Lance Nachoff

THAT the Ganaraska Region Conservation Authority received the presentation regarding

the *Floodplain Mapping Update Implementation Plan* for information;

AND FURTHER THAT the *Floodplain Mapping Update Implementation Plan* be approved by the Ganaraska Region Conservation Authority board;

AND FURTHER THAT the *Floodplain Mapping Update Implementation Plan* be forwarded to the watershed Municipalities.

CARRIED.

7. Business Arising from Minutes:

a) 2024 Preliminary Budget and Municipal Levy

The CAO/Secretary-Treasurer presented the 2024 Preliminary Budget and Municipal Levy staff report.

GRCA 51/23

MOVED BY: Randy Barber

SECONDED BY: Joan Stover

THAT the Board of Directors receive the 2024 Preliminary Budget for information and;

FURTHER THAT the budget be forwarded to the watershed municipalities, indicating in the cover letter, that the vote to approve the 2024 levy will be taken at the November 23, 2023 Board of Directors meeting.

CARRIED.

8. Correspondence

03/23 Municipality of Clarington re Presentation

GRCA 52/23

MOVED BY: Margaret Zwart

SECONDED BY: Adam Pearson

THAT the Ganaraska Region Conservation Authority receive the correspondence to note and file.

CARRIED.

9. Applications under Ontario Regulation 168/06:

Permits approved by Executive:

GRCA 53/23

MOVED BY: Adam Pearson

SECONDED BY: Miriam Mutton

THAT the Ganaraska Region Conservation Authority receive the permits for information.

CARRIED.

Permit Application requiring Ganaraska Region Conservation Authority Board of Directors discussion:

None.

10. Committee Reports:

None.

11. New Business

None.

12. Other Business:

None.

13. Public Question Period

None.

14. In Camera

None.

15. Adjourn

GRCA 54/23

MOVED BY: Adam Pearson

THAT the meeting adjourned at 5:00 p.m.

CARRIED.

CHAIR

CAO/SECRETARY-TREASURER



Wilmot/Graham Creek Floodplain Mapping Update Study

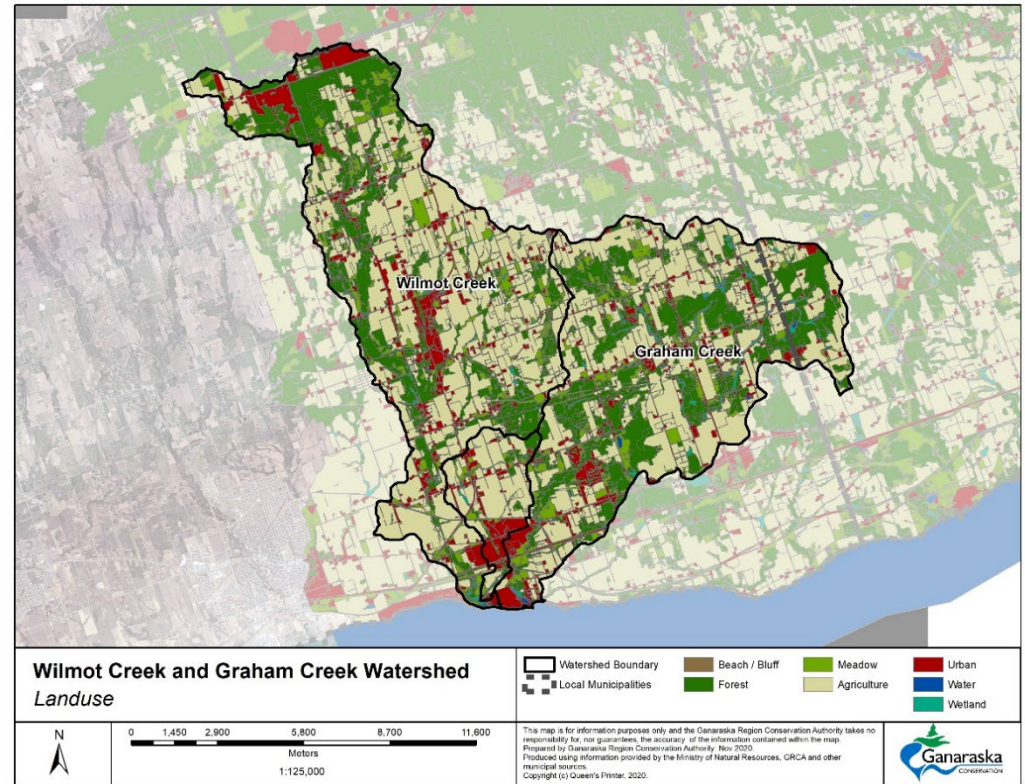
Cory Harris, P. Eng.
Watershed Services Coordinator

GRCA Board of Directors
October 19, 2023



Outline

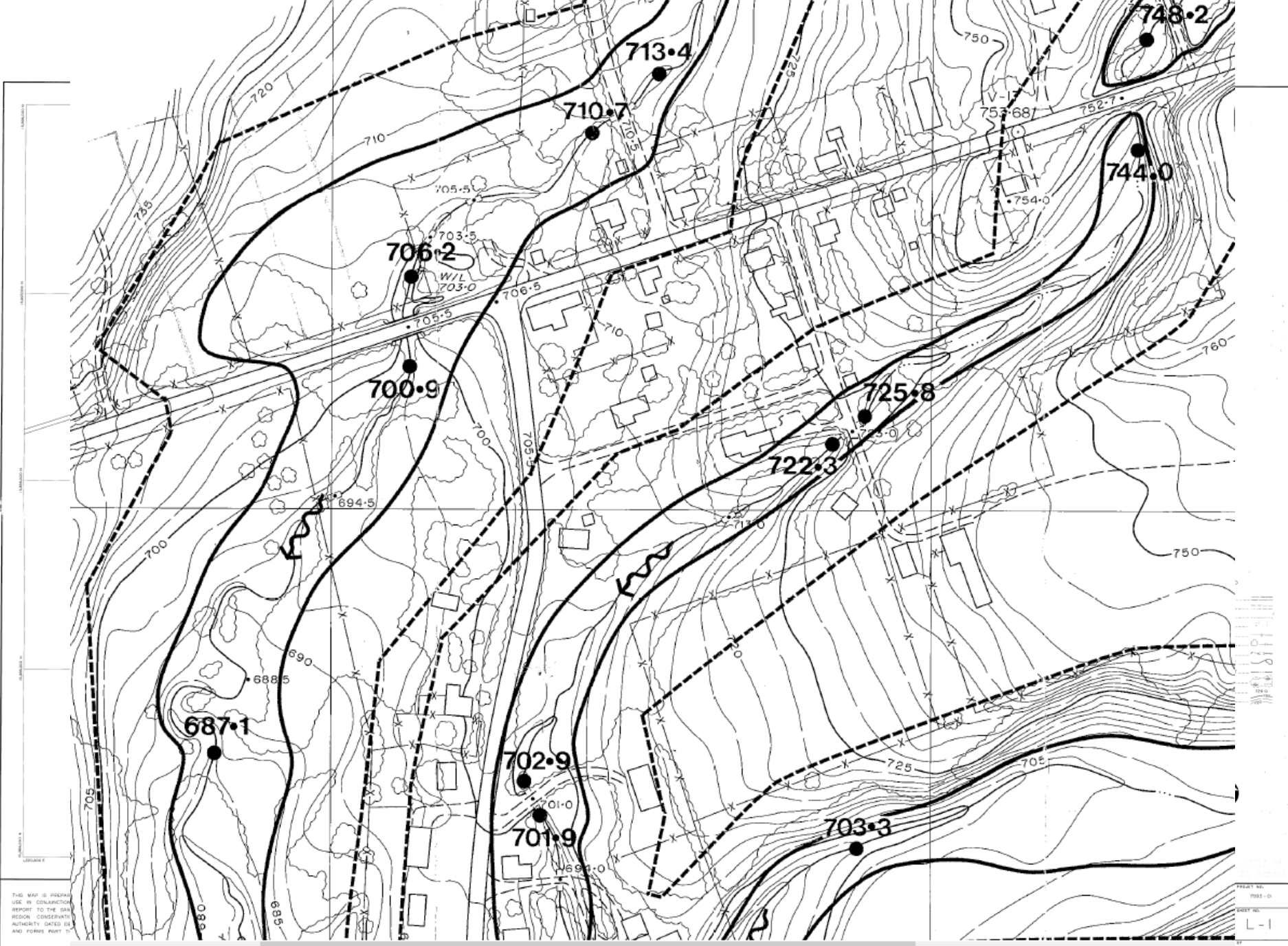
- Background & Need for Study
- Guidance Documents
- Overview of work
- Web map viewer
- Project wrap up
- Endorsement of mapping for use



Background & Need for Study

- Original study done in 1977 (over 45 years ago)
- Many things have changed since the original study
- Land uses, culvert/bridge structures, creation of Geographic Information Systems (GIS), modelling software, mapping standards
- The original models are not available (not digital)
- Hydraulic model was completed using punch cards
- Now representing watersheds using GIS
- Creating new digital models for hydrology and hydraulics
- Updating drainage areas/subcatchments, land use, soils information, structure data (i.e. replacements), channel information, etc.
- The updated mapping will provide the latest data to assist with emergency preparedness planning, including flood prevention and mitigation

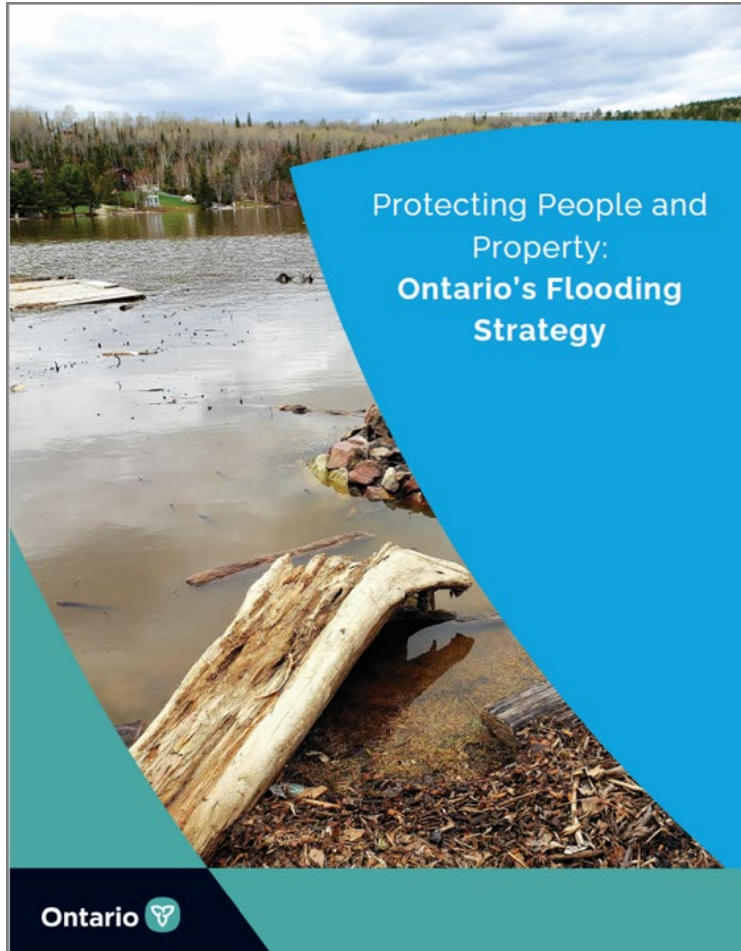




THIS MAP IS PREPARED FOR USE IN CONNECTION WITH REPORT TO THE SAN JOAQUIN COUNTY HEALTH DEPARTMENT AND FORMS PART OF THE RECORDS OF THE HEALTH DEPARTMENT.

PLAT NO. 7932-0
SHEET NO. L-1

Ontario's Flooding Strategy



Province's Flooding Strategy produced in 2020 and presented Five Priorities

Priority #1: Understand Flood Risks

Priority #2: Strengthen Governance of Flood Risks

Priority #3: Enhance Flood Preparedness

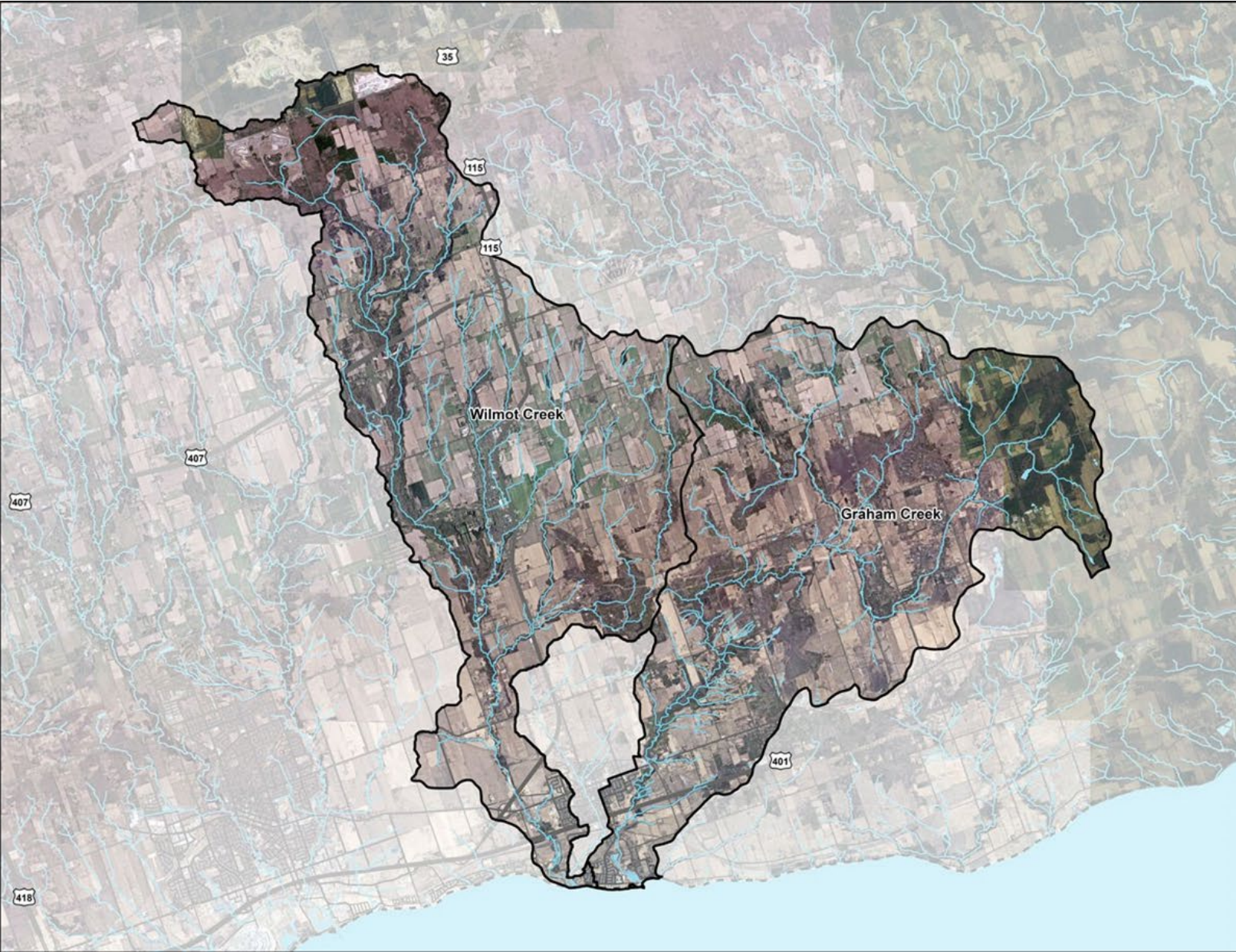
Priority #4: Enhance Flood Response and Recovery

Priority #5: Invest in Flood Risk Reduction

Existing provincial flood standards are based on historic data, not future climate change projections



Project Area



Wilmot Creek and Graham Creek Watershed

- Watershed Boundary
- Waterbody
- Watercourse
- Highway
- Arterial
- Local Street
- Local Municipalities

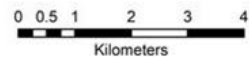
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Prepared by Ganaraska Region Conservation Authority; Feb 2023.

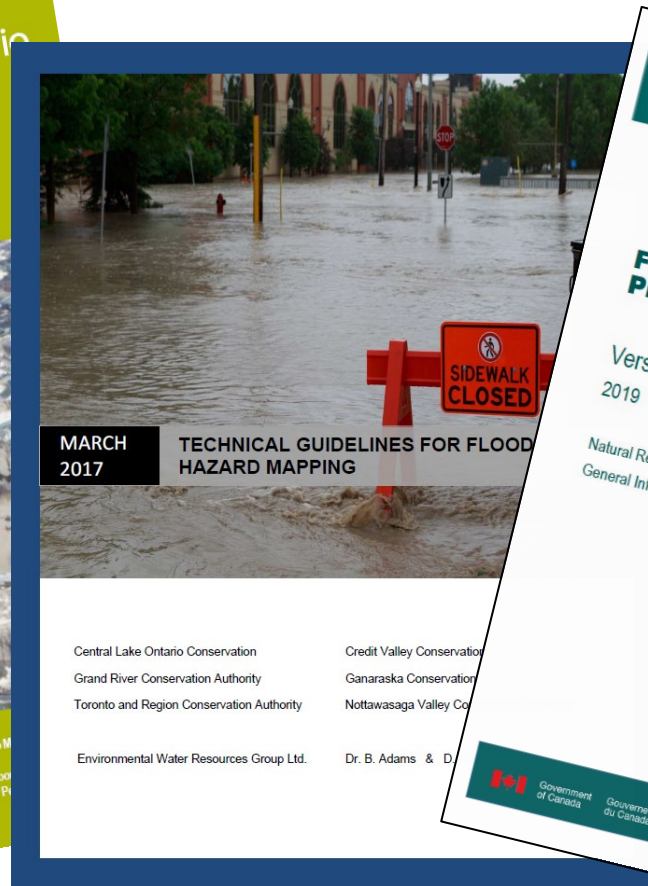
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Guidance Documents



Overview of Work Completed

- Recreation of both hydrology and hydraulic models
 - Use of 2016 LiDAR data
 - Data integrated with new national vertical data standard (CGVD2013)
 - Survey of 400+ culvert and bridge structures within Clarington/Durham
- Public Information Centre held in Newcastle on March 20, 2023
- Comments from public re mapping were received until March 26th
- Final draft maps and report prepared
- Comments received from Clarington staff in August
- Final version of reports and maps prepared in September/October



Land Use



Wilmot Creek and Graham Creek Land Use

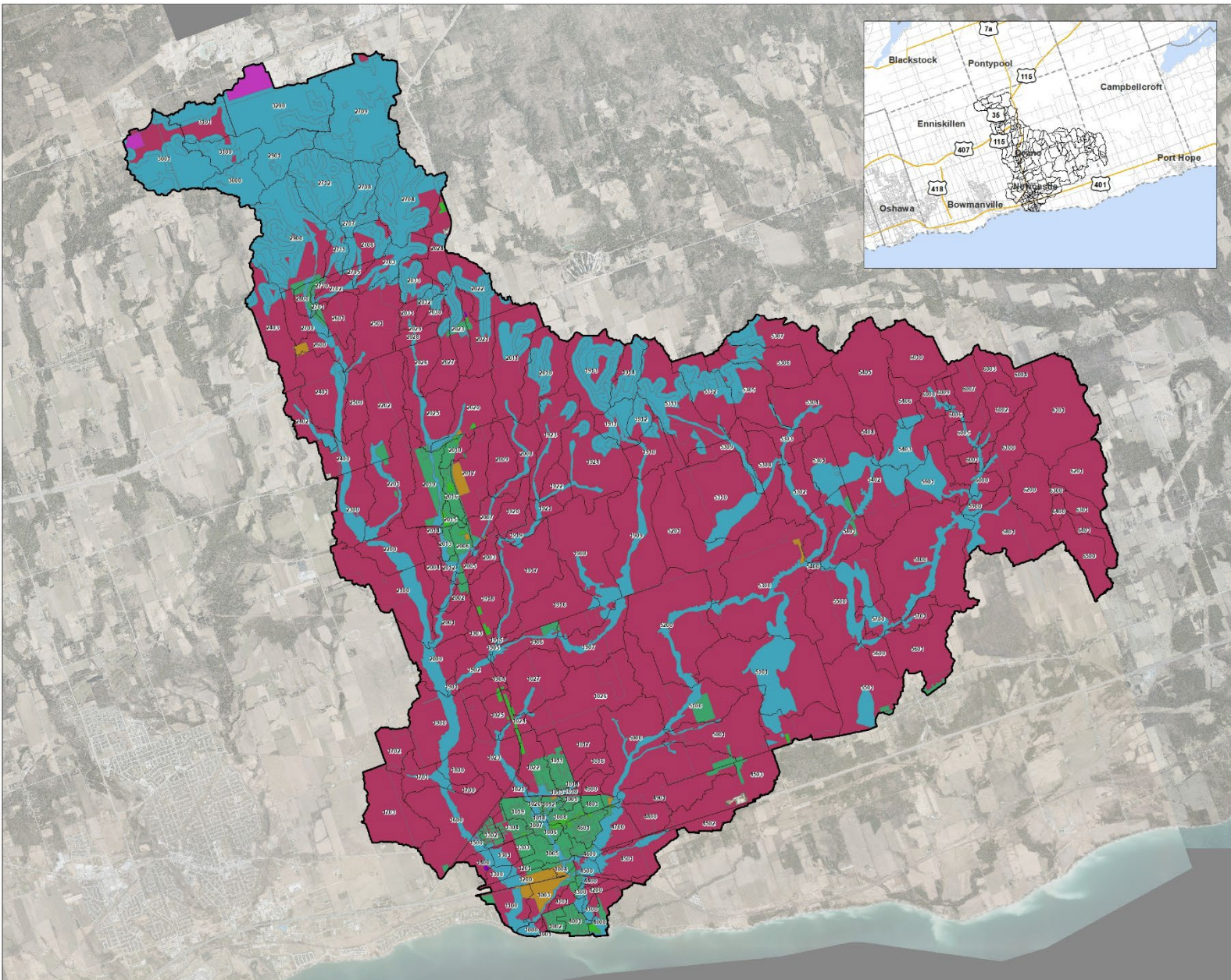


- Watershed
- Subcatchments
- Land Use**
- Agriculture
- Commercial
- Environmental Protection
- Industrial
- Institutional
- Pits/Quarries
- Residential
- Municipality
- Road Classification**
- Highway
- Arterial
- Local Street

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Meters



Soil Types



Wilmot Creek and Graham Creek Soil Type

- Watershed
- Subcatchments
- Municipality

Soil Type

- A
- B
- C
- D
- N

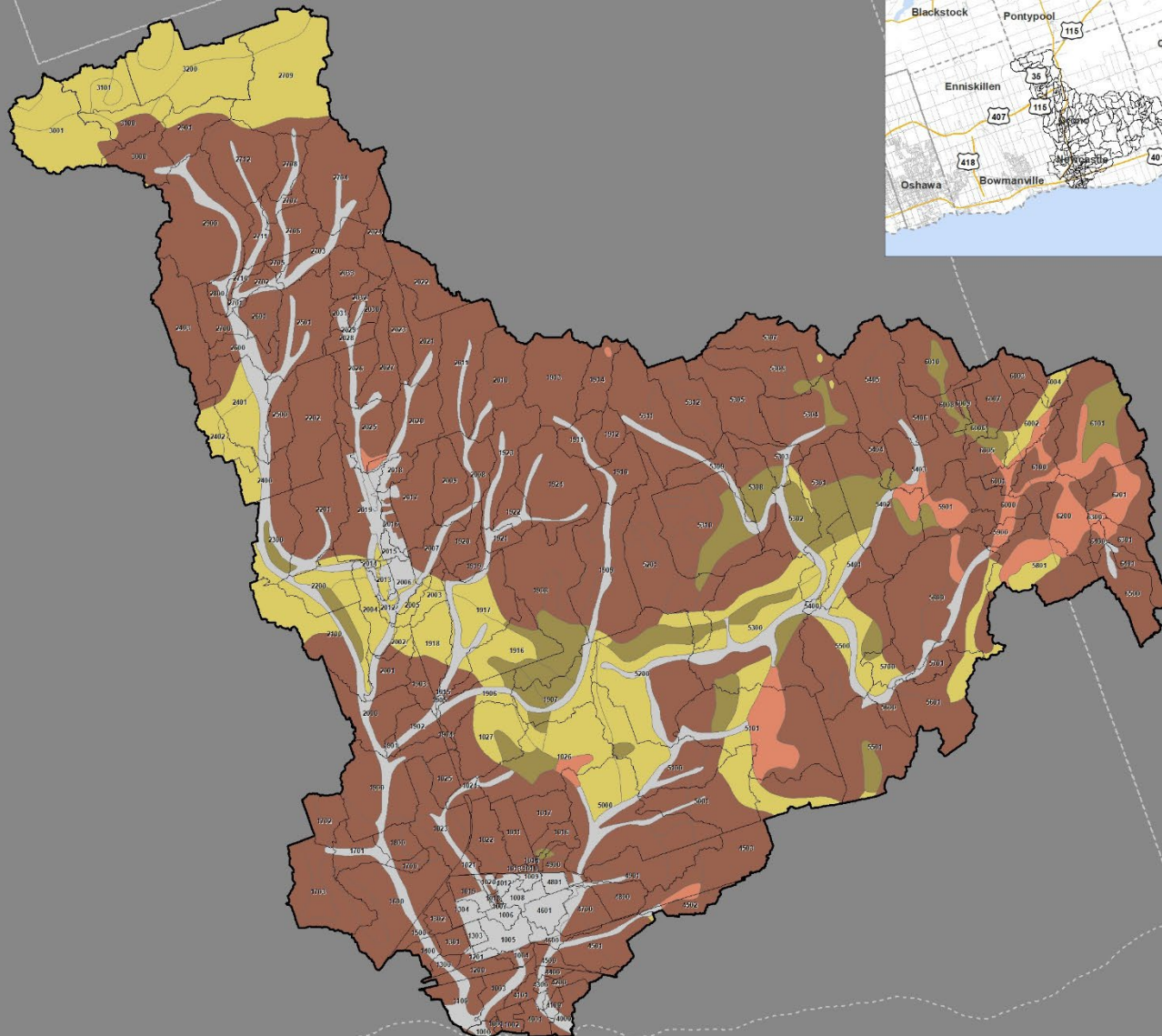
Road Classification

- Highway
- Arterial
- Local Street

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Meters



Subcatchments



Wilmot Creek and Graham Creek Subcatchments



- Watershed
- Subcatchments
- Municipality

Subwatershed

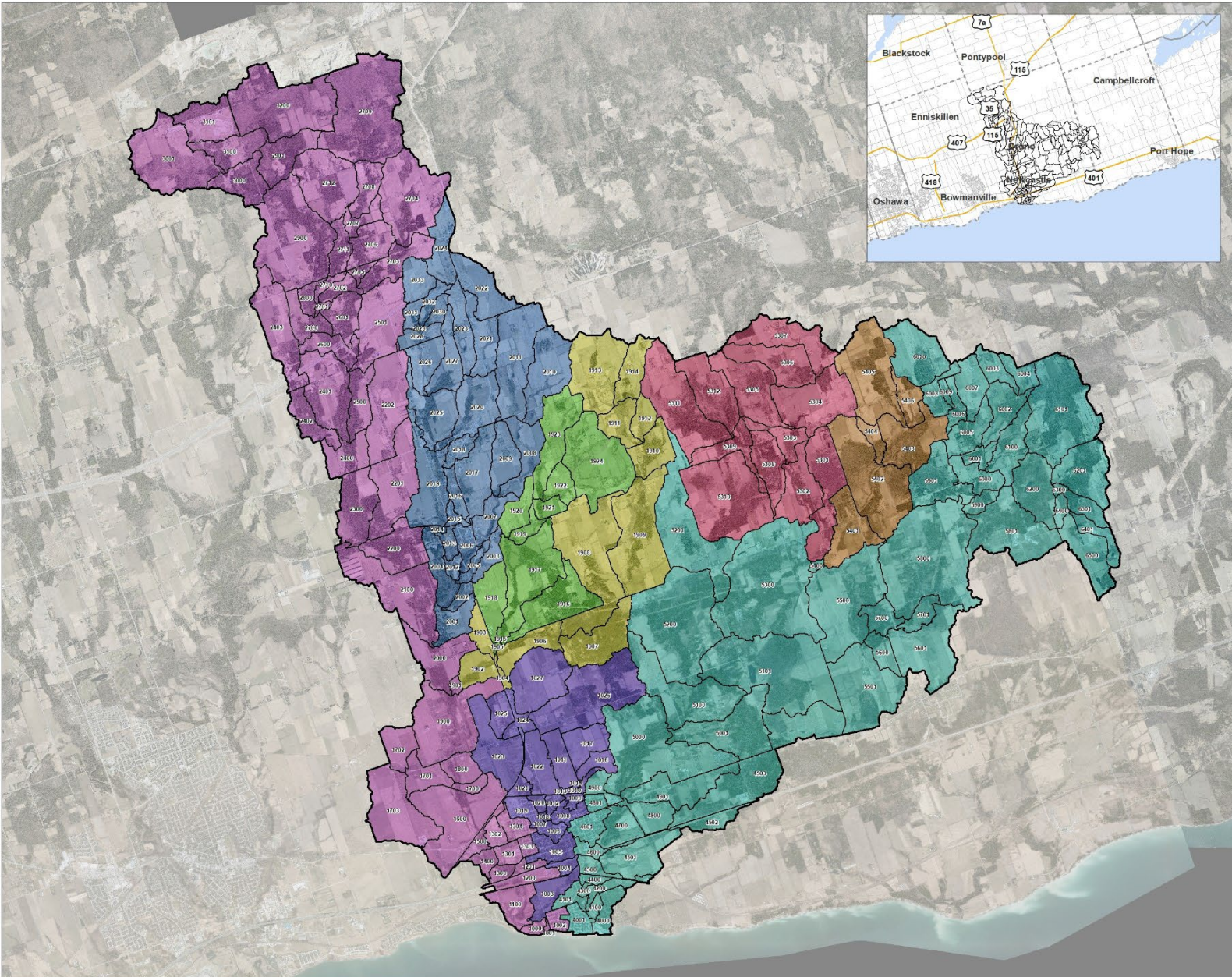
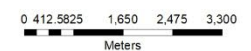
- Crooked Creek
- Foster Creek
- Graham Creek
- Hunter Creek
- Mulligan Creek
- Orono Creek
- Stalker Creek
- Wilmot Creek

Road Classification

- Highway
- Arterial
- Local Street

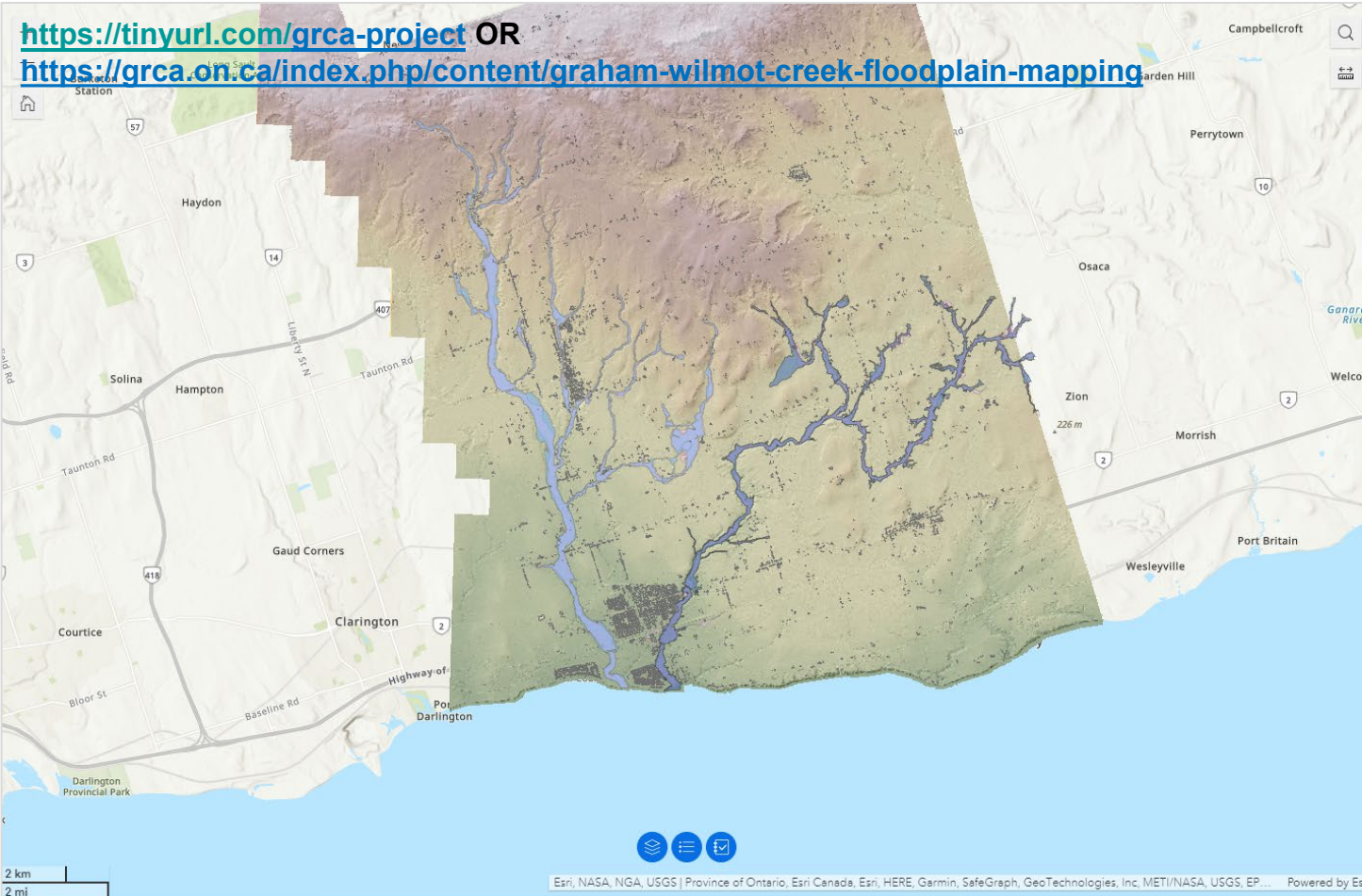
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GRCA Web Map Viewer

<https://tinyurl.com/grca-project> OR
<https://grca.on.ca/index.php/content/graham-wilmot-creek-floodplain-mapping>



[Skip to content](#)



Graham & Wilmot Creek Flood Plain Mapping

The **Ganaraska Region Conservation Authority (GRCA)** partnered with the **Municipality of Clarington** to update flood plain mapping for the **Graham & Wilmot Creek Watersheds**.

Flood plain mapping helps to identify areas that may be at risk of flooding during severe storms and is an important tool for land use planning and emergency preparedness.

The study area covers the Graham and Wilmot Creek watersheds, which includes Newcastle Village, Orono, and the Hamlets of Brownsville, Leskard, Starkville, Clarke, and Newtonville.

[View Project Page](#)

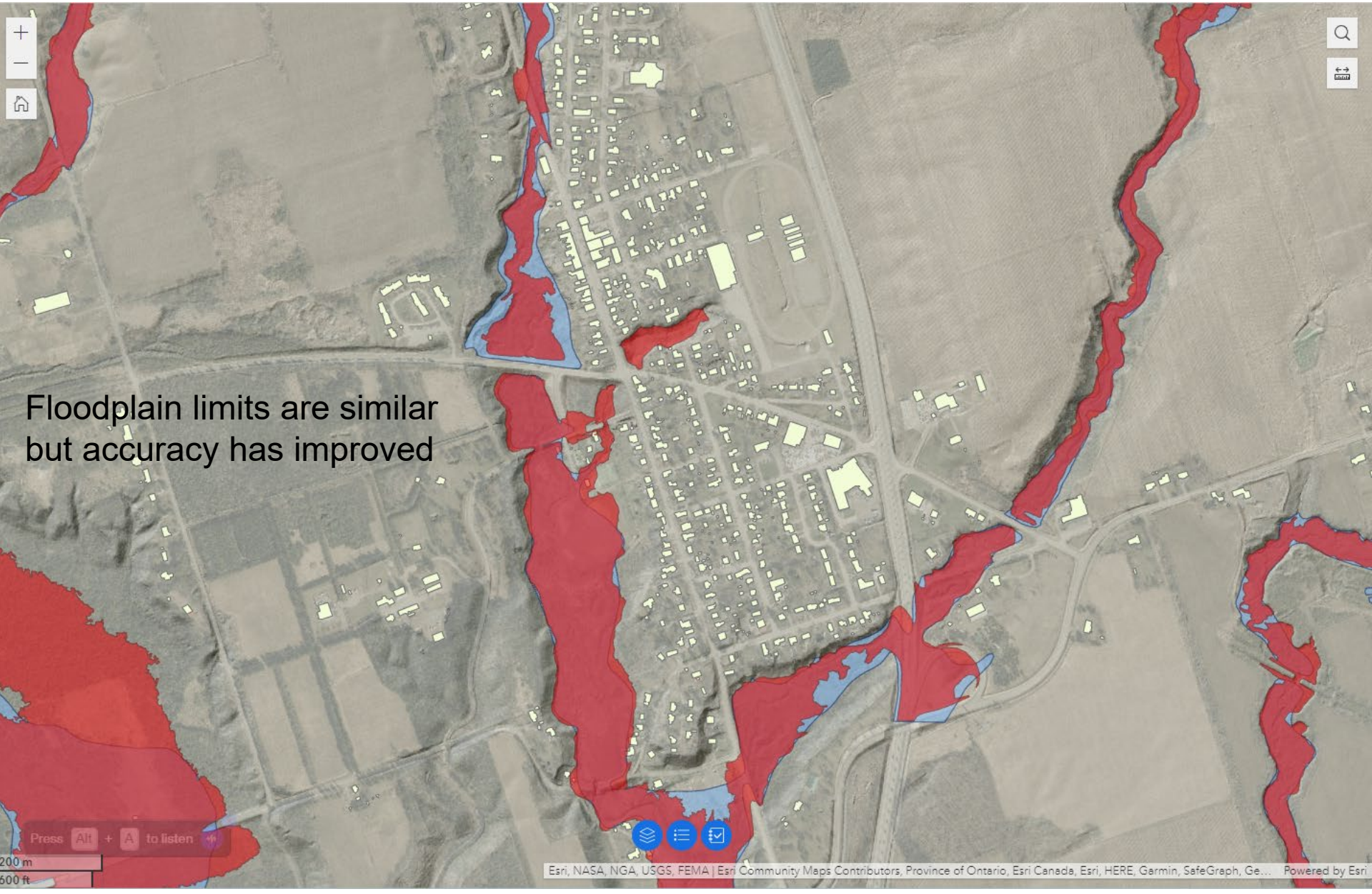
Public Information Centre (PIC)

WHEN:

Monday, March 20, 2023, 6:00 PM to 8:00 PM

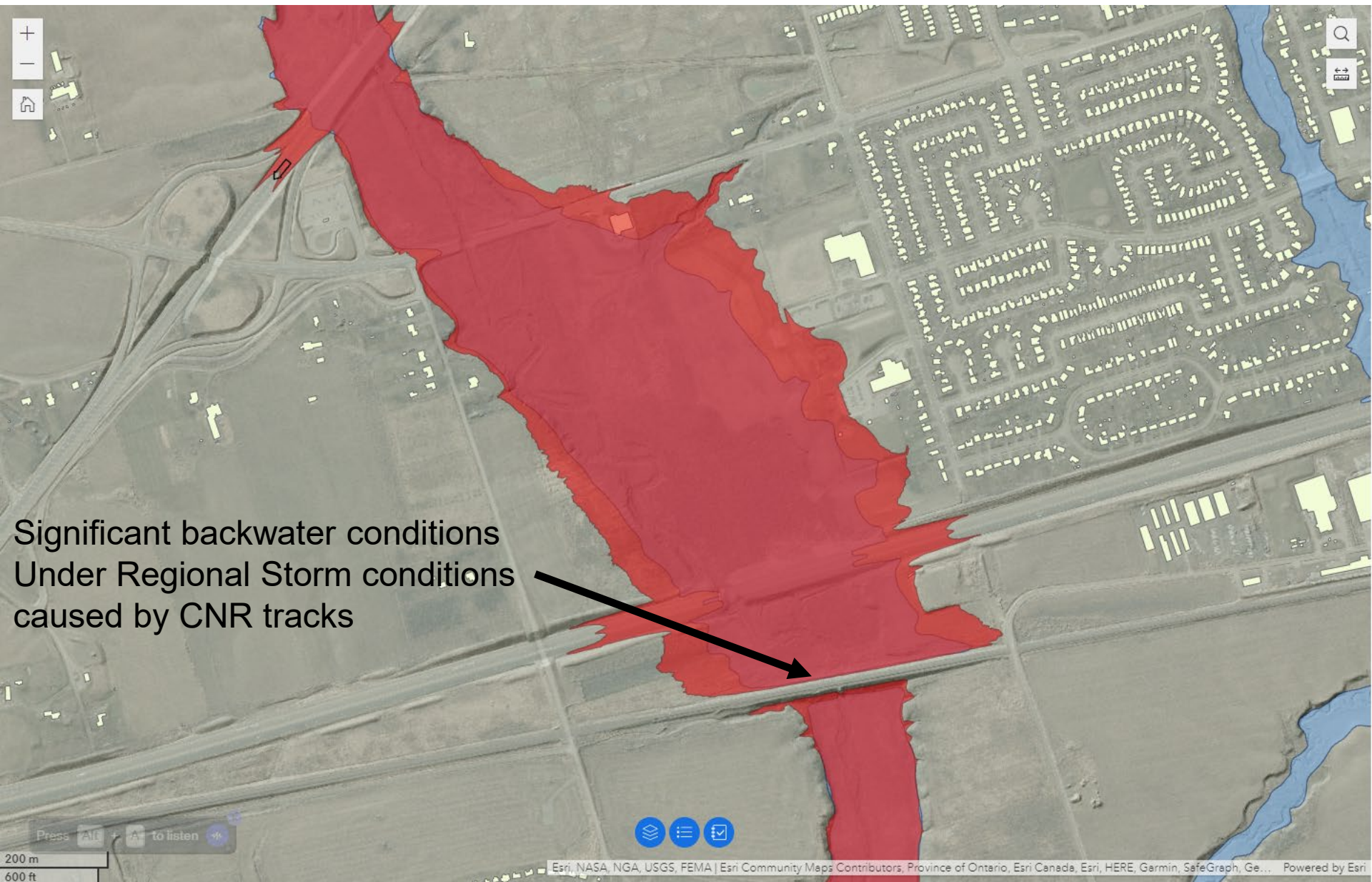


Wilmot Creek through Orono



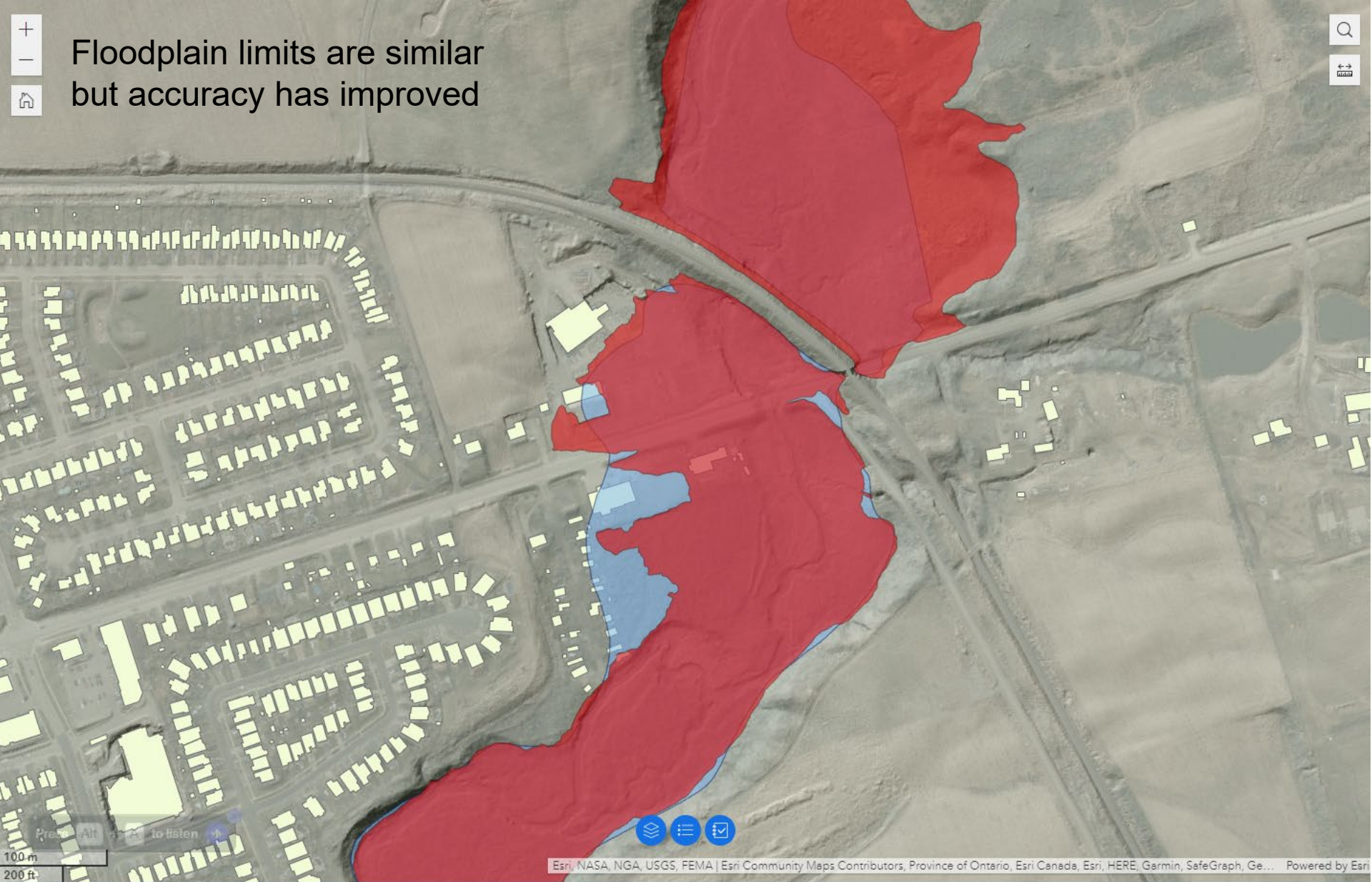
Floodplain limits are similar but accuracy has improved

Wilmot Creek at Hwy 401



Graham Creek at NE Newcastle

Floodplain limits are similar but accuracy has improved



Graham Creek at NE Newcastle



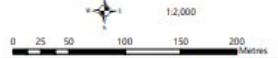
Graham Creek Flood Plain Mapping

- Legend**
- ▭ Floodline
 - Cross Section
 - Contour 1.0m
 - Parcel Fabric
 - Watercourse



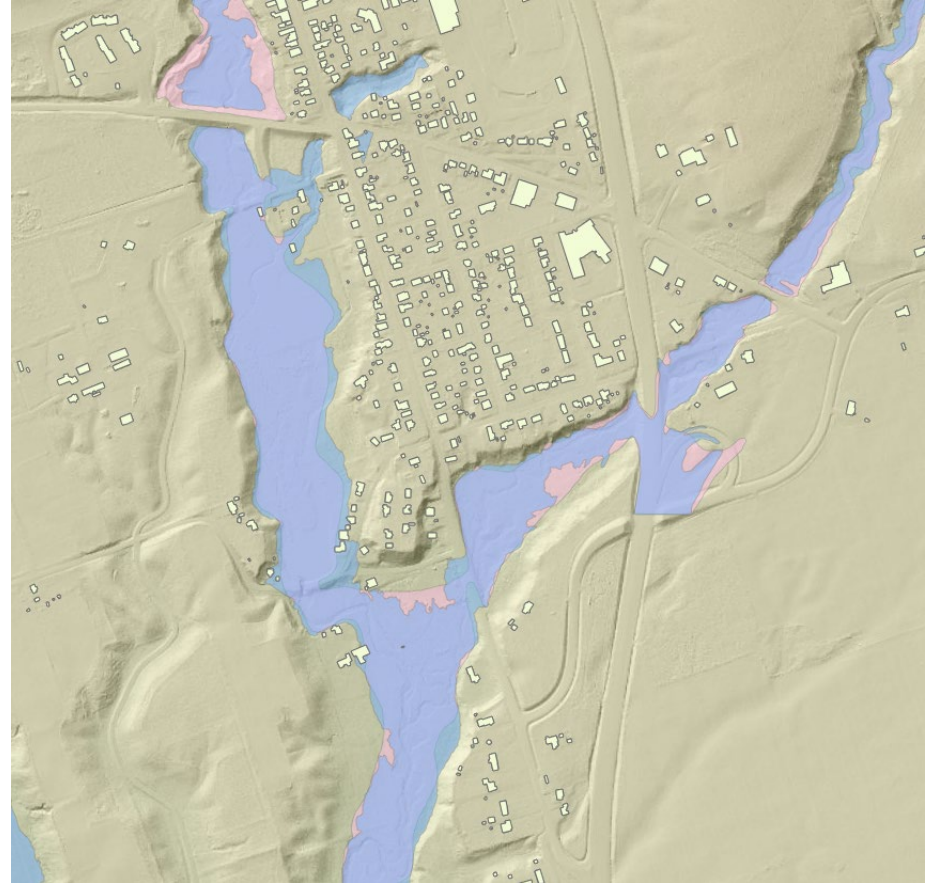
- Notes:**
- 1) LGAR (High Definition and Ranging) survey data collected Feb 2016.
 - 2) Contours provided by the Ganaraska Region Conservation Authority using LIDAR data.
 - 3) Orthophotography of 19m collected Spring 2022.
 - 4) Population - 2016 Census 17% National Average - 14.6% (CANSIM), National Census - COVID-19.
 - 5) Copyright OpenStreetMap 2022. Provided by Ganaraska Region Conservation Authority under license from the Ontario Ministry of Natural Resources.
 - 6) Printed October 18, 2024

REVISIONS		
No.	Description	By Date



Next Steps

- Once mapping is endorsed by the Board, report and maps will be delivered to NDMP program
- New mapping to be shared with Municipality of Clarington and Region of Durham to inform land use and emergency management planning
- Mapping to be used to update regulatory limits
- Models to be used in future risk assessment work for road crossings and asset management planning



Thank you to funding partners

Clarington



Government
of Canada

Gouvernement
du Canada

Public Safety Canada – National
Disaster Mitigation Program (NDMP)





Thank you!





Floodplain Mapping Update Implementation Plan

Cory Harris, P. Eng.
Watershed Services Coordinator

GRCA Board Meeting
October 19, 2023



Outline

- Context
- Why are floodplain mapping updates important?
- State of GRCA mapping
- History of available funding
- Where do we need to go?
- How do we get there?

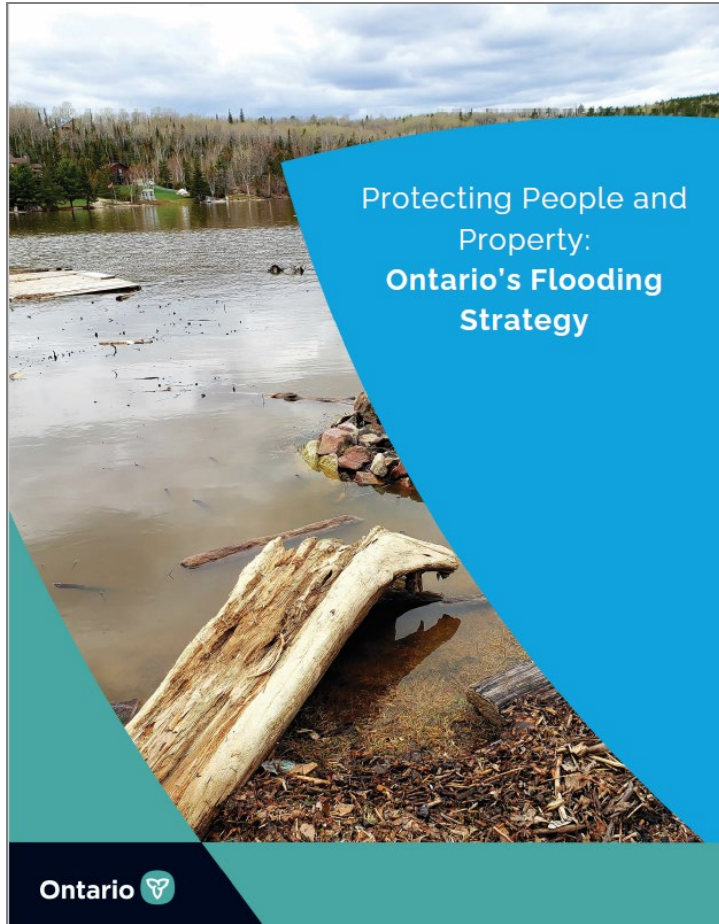


Context

- Mapping natural hazards is a delegated responsibility from Province to CAs
- Flood Management =
 1. Prevention
 2. Protection
 3. Emergency Response
- Floodplain mapping is foundational to understanding the watershed and supports all three flood management elements



Ontario's Flooding Strategy



Province's Flooding Strategy produced in 2020 and presented Five Priorities

Priority #1: Understand Flood Risks

~~Priority #2: Strengthen Governance of Flood Risks~~

Priority #3: Enhance Flood Preparedness

Priority #4: Enhance Flood Response and Recovery

Priority #5: Invest in Flood Risk Reduction

- Province has not provided funding to support implementation of the strategy
- Flood standards are based on historic data, not future climate change projections

Why are floodplain mapping updates important?

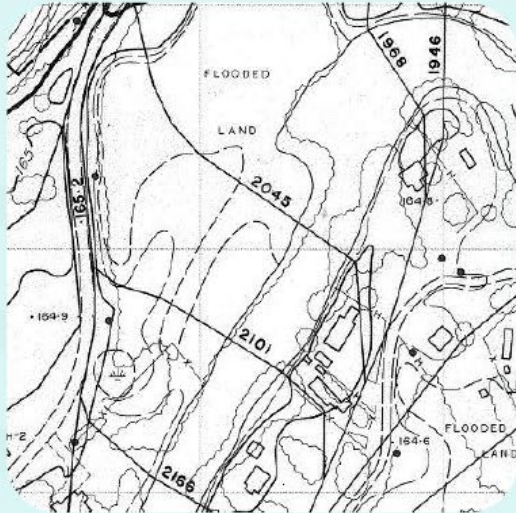
- Models need to be current to reflect changes in land use
- CAs provide mapping and models to municipal partners, consultants, etc. to quantify flood risks and to test impacts of development
- Need up-to-date models to complete risk assessments for culvert and bridge infrastructure
- Inform and prioritize asset management plan
- Test climate change scenarios and make our communities more resilient



Funding History

History of Federal Flood Mapping

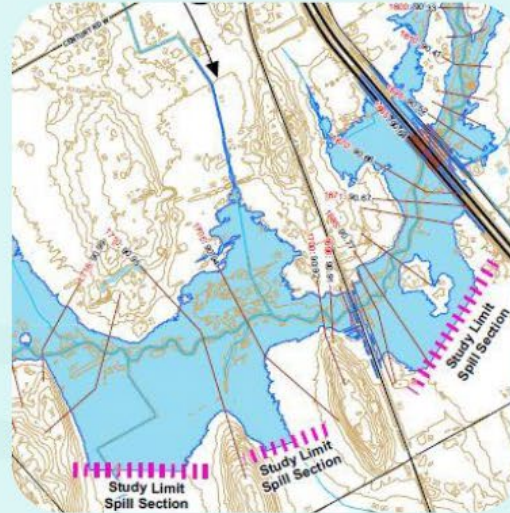
1976 - 1996



FDRP

Flood Damage
Reduction Program

2015 - 2022



NDMP

National Disaster
Mitigation Program

2021 - 2024

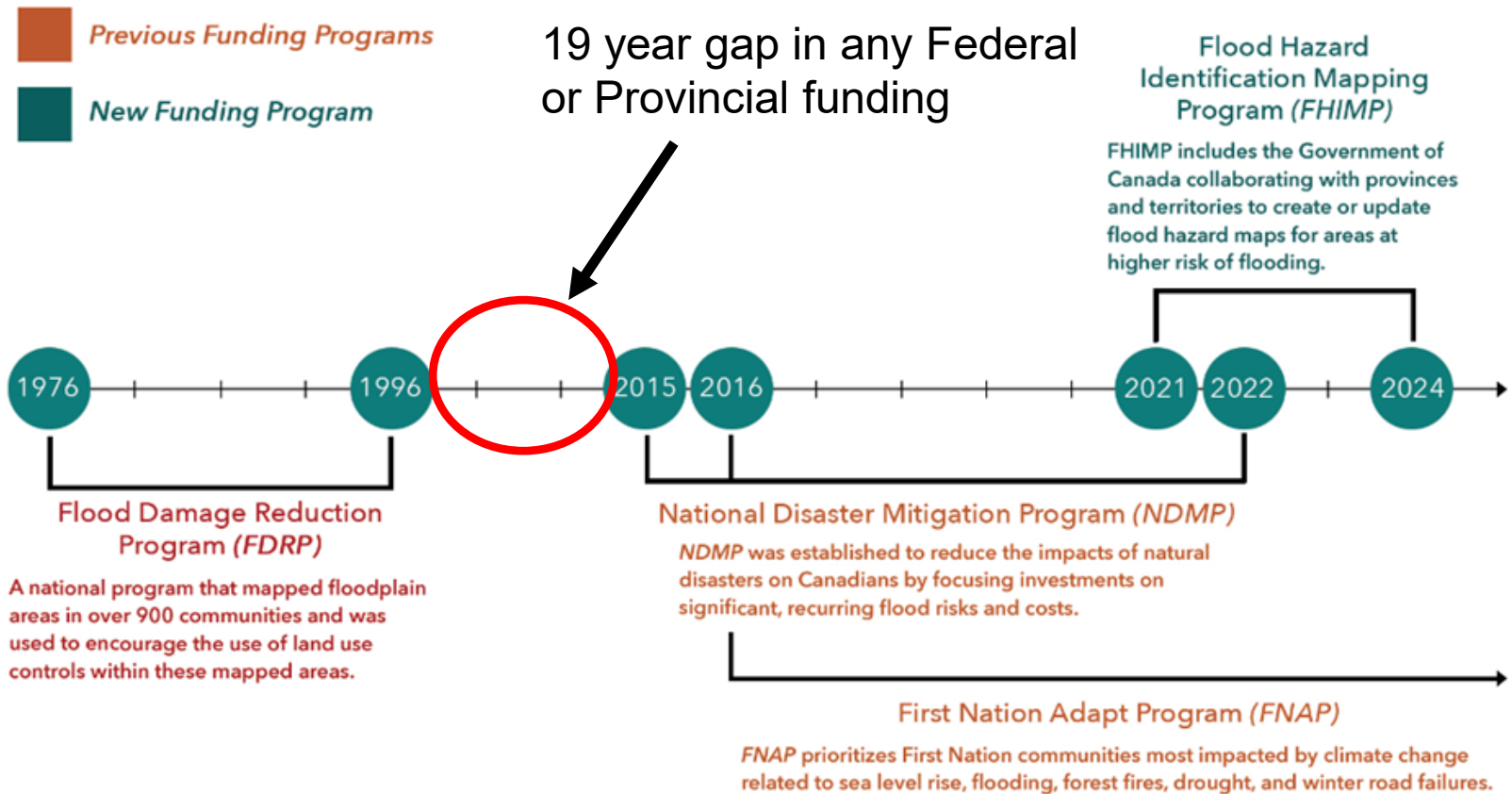


FHIMP

Flood Hazard Identification
and Mapping Program

Funding History

Federal role in Flood Mapping

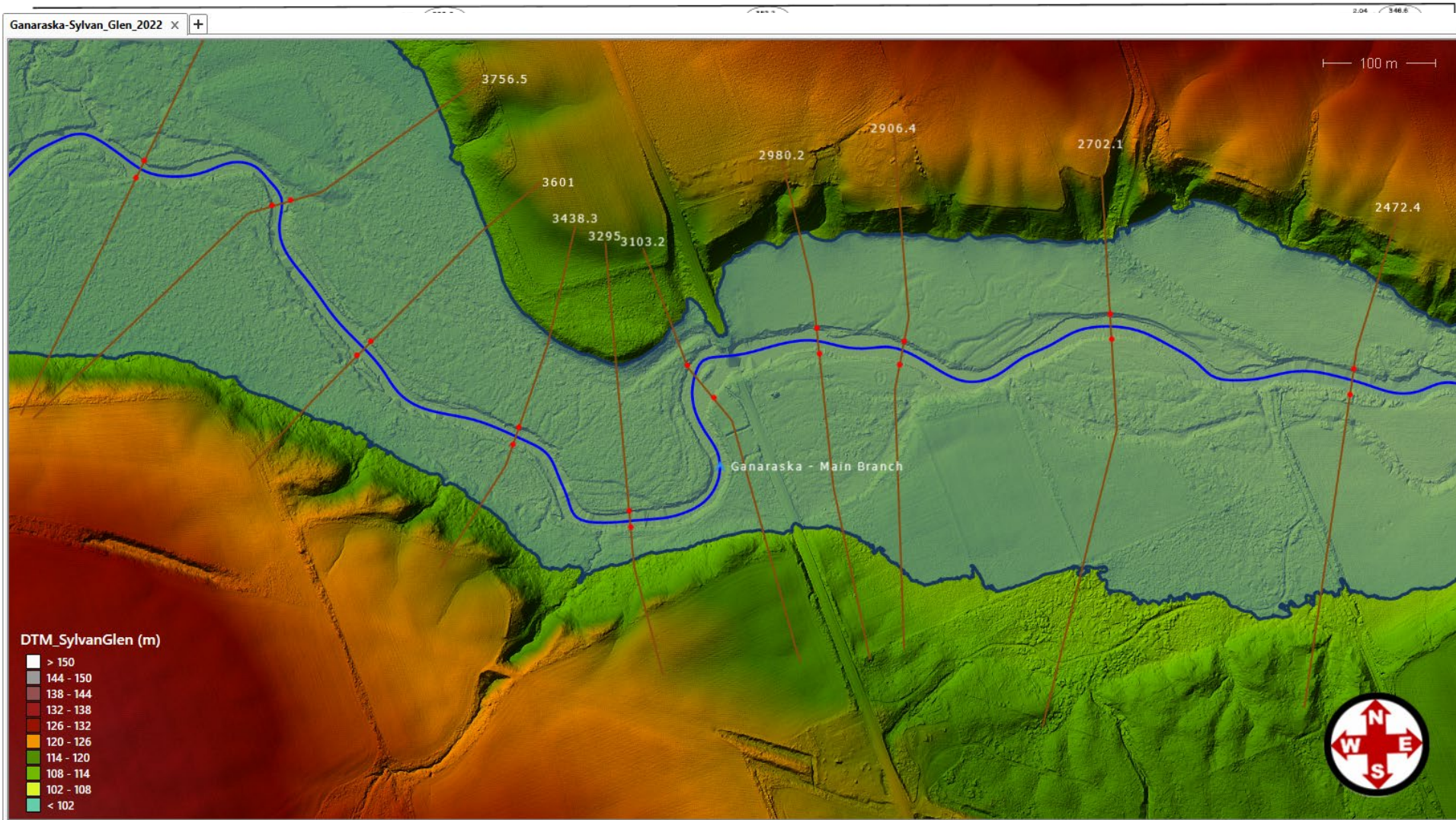




FHIMP Funding Being Extended

- The previous National Disaster Mitigation Program (NDMP) had a 50-50 funding requirement and had six separate application intakes between 2015 and 2021
- **Natural Resources Canada (NRCan) has recently announced (October 2023) an extension to the Flood Hazard Identification and Mapping Program (FHIMP) through March of 2028!!!**
- Funding application intakes are expected to open in the coming months
- We have the next four years to leverage the federal dollars to get the mapping updates completed!

Sylvan Glen Example



LEGEND
 FLOODLINES CENTER OVER WATERBODIES
 REGIONAL STORM
 200 YEAR STORM
 FILL AND CONSTRUCTION LIMIT
 CROSS-SECTION LOCATION
 FLOODLINE ELEVATION IN FEET



GANARASKA REGION CONSERVATION AUTHORITY
 FILL AND FLOOD PLAIN MAPPING
 OF THE GANARASKA RIVER

ONTARIO REGULATION NO. _____ SCHEDULE NO. _____

TERRESTRIAL MAPPING COMPILED BY MARSHALL, MACKLIN, MORGAN LTD.
 FROM 1978 AERIAL PHOTOGRAPHY



CONTOUR INTERVAL: 5 FEET, 20 FEET INTERPOLATION
 GEODETIC DATUM: MEAN SEA LEVEL, AS ESTABLISHED BY
 NAD83 DATUM OF CANADA
 PROJECTION SYSTEM: SP TRANSVERSE MERCATOR
 DATE: JAN, 1990
 SHEET 14 of 117

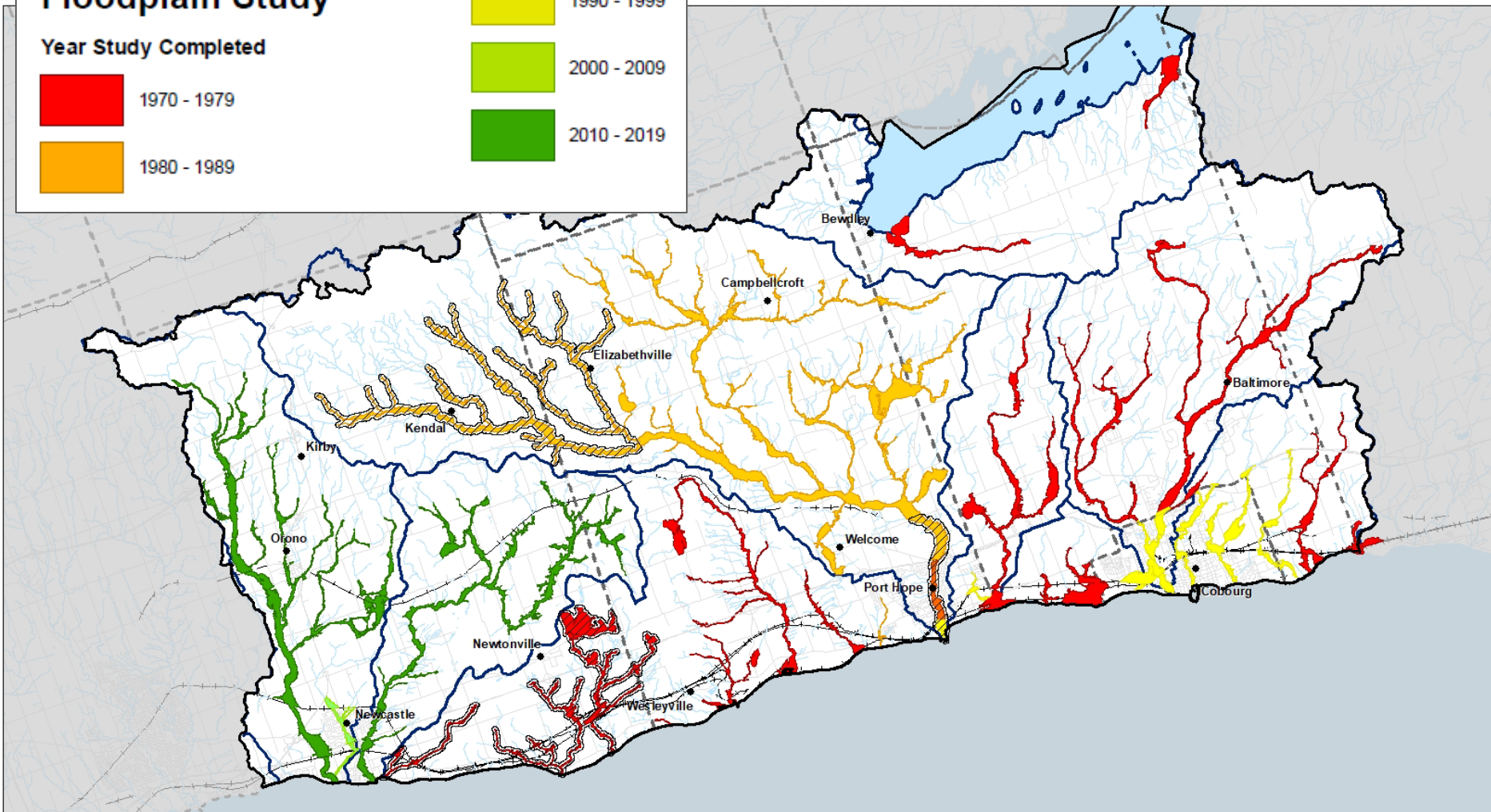
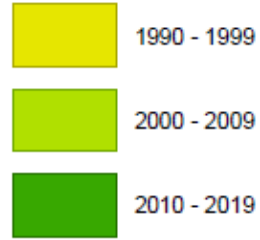
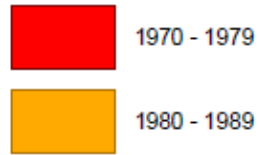
MARSHALL, MACKLIN,
 MORGAN LTD.

TOTTEN SIMS HUBICKI
 ASSOCIATES

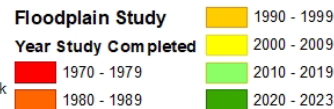
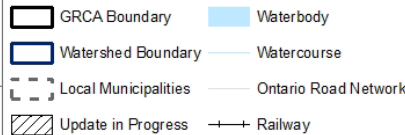
Floodplain Studies by Date

Floodplain Study

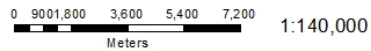
Year Study Completed



Ganaraska Region Conservation Authority - Floodplain Mapping
Floodplain Studies by Date Completed



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New Vertical Datum Standard

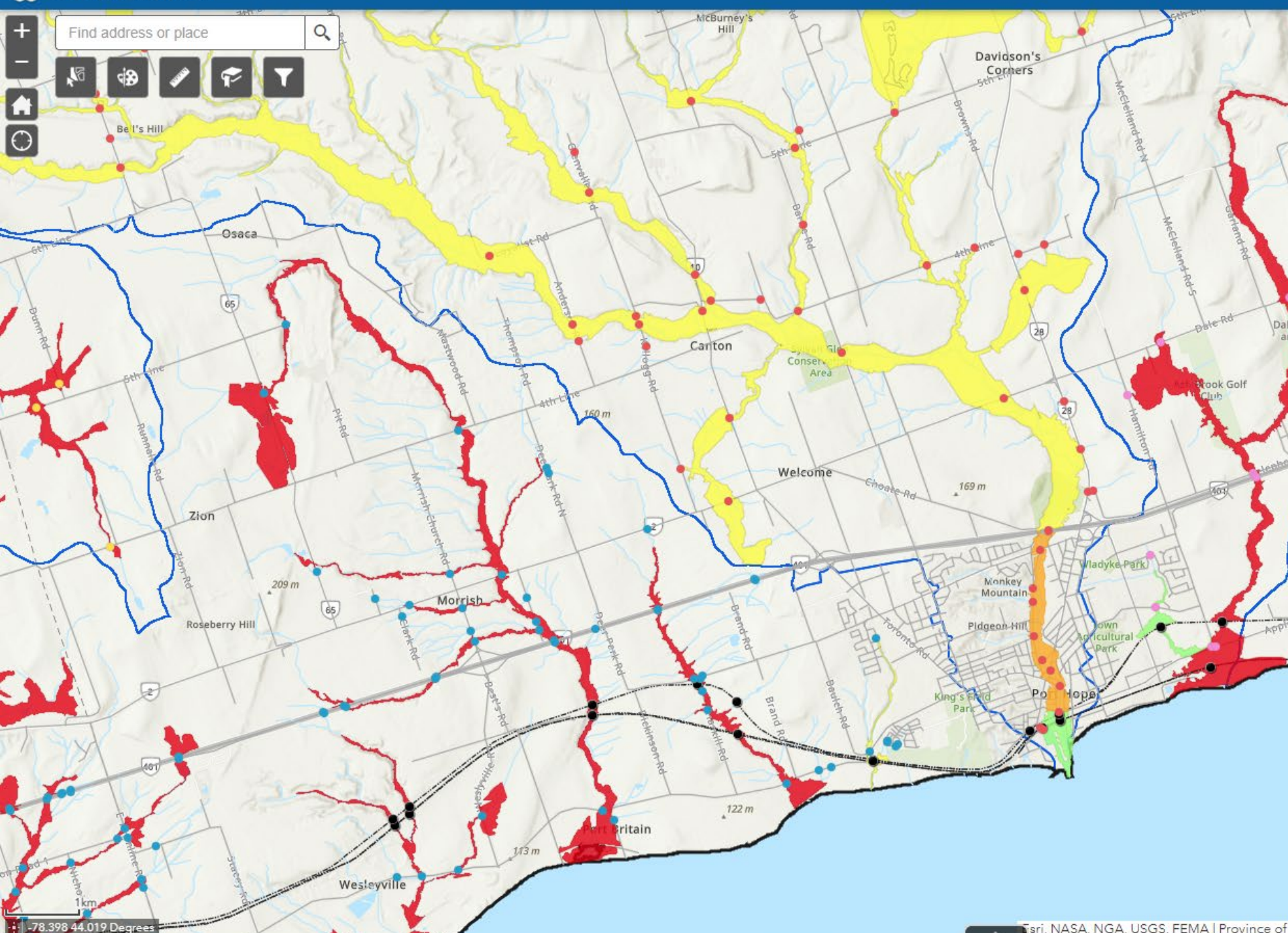
In November 2013, Natural Resources Canada (NRCan) released the Canadian Geodetic Vertical Datum of 2013 (CGVD2013), which is now the new standard for heights across Canada. This new height reference system replaced the Canadian Geodetic Vertical Datum of 1928 (CGVD28), which was adopted formally by an Order in Council in 1935.

[https://natural-resources.canada.ca/sites/nrcan/files/files/pdf/Height_reference_system_modernization_\(EN\).pdf](https://natural-resources.canada.ca/sites/nrcan/files/files/pdf/Height_reference_system_modernization_(EN).pdf)



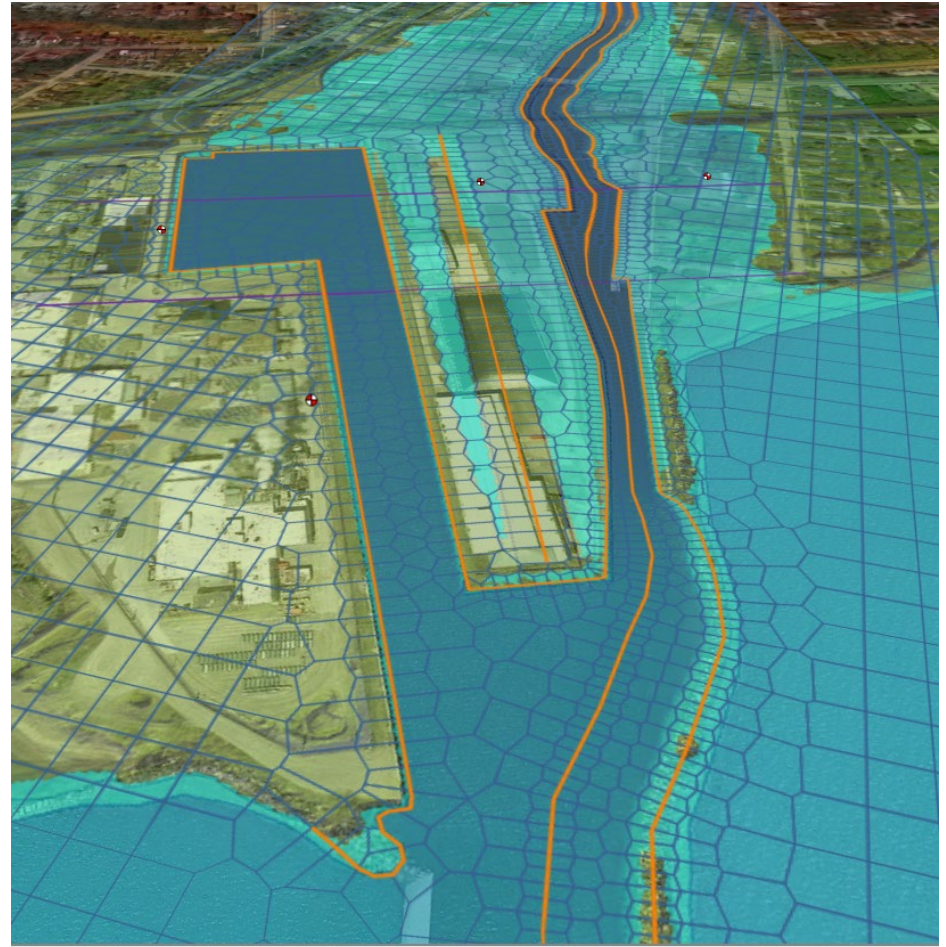
Find address or place

Map navigation icons: Home, Refresh, Full Screen, Street View, Measure, Layers, Search, and a search icon.



Where do we need to go?

- We need to create/update and maintain digital (hydrology and hydraulic) models for all of our watersheds
- This provides up-to-date estimations of floodplain limits for planning, regulatory and emergency management purposes
- Models can be modified and regularly updated easily (at low costs) when they are digital
- Can use models to test climate change scenarios
- Data sharing and client service



Ranking Used to Identify Priorities

- Each watercourse was reviewed and ranked for age of hydrology and hydraulic models, age of mapping, and risk levels
- Hydrology, hydraulics, and mapping were each given a score from 1 to 4
 - 1 being current and accurate
 - 4 indicating no models or digital maps
- Hazard level was also given a score from 1 to 4
 - 1 being low risk
 - 4 being high risk

All of the components were combined using the formula:

$$\text{Score} = (\text{Hydrology} + \text{Hydraulics} + \text{Mapping}) * \text{Hazard Level}$$



Watercourse Prioritization Matrix

Watershed/Watercourse	Hydrology	Hydraulics	Mapping	Hazard Level	Score
Cobourg Creek (in Hamilton Township/Alnwick-Haldimand)*	4	4	4	3	36
Spicer Creek/Covert Creek*	4	4	4	3	36
Wesleyville Creek	4	4	3	3	33
West Gages Creek	3	2	3	4	32
Cobourg Creek (2D assessment)	2	3	3	4	32
Midtown Creek (2D Assessment - Elgin Rd to Lake)	2	3	3	4	32
Foster Creek 2D - from CPR to CNR	1	3	3	4	28
Foster Creek - merge 2015 and 2019 models	2	2	2	4	24
Ganaraska River (Urban Area)	2	2	2	4	24
Ganaraska River (Rural Area)**	4	4	4	2	24
Gages Creek**	4	4	4	2	24
East of Gages Creek Trib 5 (Apple Orchard Rd/Bob Carr Rd and Hwy 2)	4	4	4	2	24
East of Gages Creek Trib 6 (Westwood Dr and CNR/CPR)	4	4	4	2	24
Cobourg Creek (in Cobourg)	2	2	2	4	24
Midtown Creek	2	2	2	4	24
Brook Creek	2	2	2	4	24
Plainville Creek (Plainville to Rice Lake)	4	4	4	2	24
Port Britain Creek	4	4	3	2	22
Little's Creek (on West side of Urban Port Hope)	4	4	3	2	22
Massey Creek	2	2	2	3	18
East of Gages Creek Trib 4 (Augustine Rd and Hwy 2)	4	4	4	1	12
Brookside Creek (Carruthers Rd and Hwy 2)*	4	4	4	1	12
Harwood/Goose Creek (Harwood Rd to Rice Lake)	4	4	4	1	12
West Lake Ontario Trib 8 (East of Port Granby)	4	4	3	1	11
Wesleyville Marsh Creek	4	4	3	1	11
Brands Creek (East of Port Britain Creek)	4	4	3	1	11
Wilmot Creek	1	1	1	2	6
Graham Creek	1	1	1	2	6
Lovekin Creek	1	1	1	2	6
Bouchette Point Creek	1	1	1	2	6
Port Granby Creek	1	1	1	2	6

How do we get there?

- Receive Board endorsement of the update strategy/implementation plan
- Develop and finalize work plans and cost estimates for all projects
- Meet with municipal partners to establish priorities and available funding to leverage federal funding
- Work will need to be phased over next 4-5 years to get all watersheds up-to-date
- Recommending that municipalities consider allocating funds to municipal reserves such that dollars can be leveraged to obtain available federal FHIMP funding (while available) to defray and reduce costs

